NORTH DAKOTA
NPS POLLUTION MANAGEMENT PROGRAM

2016 Annual Report

January 2015 – December 2016 Reporting Period

NORTH DAKOTA
DEPARTMENT *of* HEALTH

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Introduction

The North Dakota Nonpoint Source Pollution Management Program (NPS Program) is a voluntary program focused on the reduction and prevention of NPS pollution impairing beneficial uses of the state's water resources. Locally sponsored projects are the primary means by which the NPS Program is implemented across the state. Through these local initiatives, the ND Department of Health (Department) has supported numerous on-the-ground efforts as well as many educational events to move toward the goals of the 2015 – 2020 NPS Pollution Management Program Plan (Management Plan). The Management Plan vision and mission statement are as follows:

> North Dakota NPS Program Vision: "To abate all NPS pollution threats and impairments to the beneficial uses of the waters of the state."
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> North Dakota NPS Program Mission: "To accomplish the vision, the mission for the NPS Program is to implement a voluntary, incentive-based program that restores and protects the chemical, physical, and biological integrity of waters where the beneficial uses are threatened or impaired due to nonpoint sources of pollution."

Three primary goals have been established for the effective period of the Management Plan to carry out the NPS Program's mission and ensure continued progress toward the NPS Program vision. These goals are focused on watershed assessment; implementation of corrective measures; and public education. The effective period for the Management Plan is January 2015 through December 2020. The specific goals set for the Management Plan period are as follows:

> Goal 1: Coordinate with the Total Maximum Daily Load Program (TMDL Program) and local partners to assess 15 priority watersheds to document the beneficial use conditions as well as the sources and causes of NPS pollutants impairing beneficial uses of the waterbodies within the watersheds. Progress for this goal will be evaluated by tracking the number of waterbodies assessed as well as the number of TMDL or NPS Assessment Reports developed. *[NOTE: The number of 12 digit watersheds to be assessed may increase to 25 if the development of the Basin Water Quality Management Framework proceeds as planned. The first basin assessment activities are expected to run from 2016-2017 in the Red River Basin, followed by watershed assessment activities in a second basin in 2018-2019. These basin assessments may result in the completion of 10 additional watershed assessments.]*
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> Goal 2: In cooperation with local partners, develop and implement watershed restoration or protection plans for 15 priority sub-watersheds. Success of these projects will be defined by restoration of impaired uses; applied best management practices (BMPs) and progress toward pollutant load reductions described in the approved watershed-based plans. Priority watersheds will include those with impaired waterbodies listed in the 2014 or subsequent Integrated Reports or those identified in approved basin water quality management plans. To allow flexibility in staffing and planning, the watershed projects may address one or more impaired waterbodies and encompass several 12 digit hydrologic units (i.e., sub-watersheds). However, a single sub-watershed will be the

preferred project size. For the projects that must include multiple sub-watersheds, the sub-watersheds will be prioritized to establish a long term implementation schedule based on those priorities. The implementation schedule of most of the watershed projects will also likely exceed 5 years and extend into the time periods for subsequent management plans. *[NOTE: As previously indicated, the number of watershed projects implemented may increase by approximately five if the Basin Water Quality Management Framework and Red River Basin assessment are completed, as scheduled. The timeline for the completion of the assessment work in the second basin will not allow sufficient time for the implementation of additional watershed projects in that basin]*

Goal 3: Through multiple forms of media at the state and local level, increase public awareness and understanding of water quality and beneficial use impairments associated with NPS pollution as well as the sources and causes of NPS pollution in the state. Feasible solutions to the state's NPS pollution issues will also be a major part of NPS Program outreach efforts. The target audience will be the general public, with particular emphasis placed on reaching individuals and organizations involved in the agricultural industry. As the ND Nutrient Reduction Strategy evolves during the Management Plan period, the educational goal of the NPS Program will also be adjusted to ensure coordination and the delivery of a consistent message on nutrient management. Attendance, exit surveys, follow-up contacts, and feedback will be the main measures used to gauge the success of local educational events. A statewide survey, the first and final year of the Management Plan, will be conducted to evaluate general public awareness.

While the goals of the Management Plan are to initiate 15 watershed restoration projects by 2020, ten or more years are generally required to complete a watershed restoration project and possibly even more years are needed to confidently evaluate the degree of improvements. Therefore, many of the watershed restoration projects initiated by 2020 will not be fully complete until after 2025. The final success for these projects will be reported under future management plans. However, annual progress and interim success will be reported during the current Management Plan period to track measures being initiated to address the identified water quality impairments. In addition, with the continual start-up of new assessment efforts each year, future Integrated Reports will undoubtedly identify new waterbodies with beneficial uses impaired by NPS pollution. As such, financial and technical support to develop and implement these new watershed restoration projects will also continue well beyond the effective period of the current Management Plan.

Incremental advancement toward the NPS Program vision will be measured by progress toward the NPS Program goals as well as by the accomplishments under the five Program Delivery objectives. Major outcomes that will be tracked and measured during the Management Plan period to gauge overall progress of the NPS Program include: waterbodies assessed; beneficial uses restored; water quality trends; nutrient load reductions; public awareness; stakeholder groups formed; and basin management plans developed. The annual and final reports entered in the EPA Grants and Reporting System (GRTS) will be the primary means used to document project and program progress as well as to report to the EPA. The EPA performance measures,

WQ-10 and SP-12, will also be used to report on specific projects where a beneficial use has been fully restored or on projects where trends indicate declining pollutant loads or concentrations.

The EPA Grants Reporting and Tracking System (GRTS) is the main reporting tool used to describe all the projects supported with Section 319 funding as well as report on specific project accomplishments. As projects are approved for Section 319 funding, the GRTS is updated to include information such as the 1) project goal; 2) Section 319 budget; 3) targeted NPS pollutants; 4) local sponsors; 5) type of waterbody being addressed; 6) pollutant load reductions; and 7) BMP planned/applied. The project implementation plans as well as the annual and final reports for each project are also posted in the GRTS.

EPA performance measures (i.e., SP-12 and WQ-10) are an additional reporting process used to highlight the successes and accomplishments of specific projects in the state. The NPS Program coordinates with EPA to submit at least one SP-12 report and one WQ-10 report each year. The SP-12 reports highlight projects that have documented improving trends in water quality, while the WQ-10 reports focus on waterbodies that have one or more beneficial uses restored by the NPS Program. All approved WQ-10 Success Stories are posted on EPAs website.

Each year, the NPS Program also submits an annual program report to EPA to provide an update on progress toward the Management Plan goals and objectives. The main components of the reports include five sections focused on the NPS Program delivery objectives and a final section addressing progress toward planned outcomes. Section VII of the annual reports is the closing section that describes progress toward the planned NPS Program outcomes, while Sections II through VI address the following delivery objectives: 1) Waterbody Prioritization; 2) Resource Assessment; 3) Project Assistance; 4) Coordination; and 5) Public Out-Reach Education. The sections of the annual reports are consistent with the sections in the Management Plan.

The NPS Program annual reports are cumulative reports that describe up-to-date progress under the 2015 – 2020 NPS Pollution Management Program Plan. As such, the time frame for the 2016 annual report is January 1, 2015 to December 31, 2016, which is consistent with the first two years of the current Management Plan. Active Section 319 Grants during this period included the 2010 – 2016 Grants. The 2010 Grant expired and was closed out during the 2015 annual reporting period and the 2011 Grant was closed out in 2016. Ending budgets for the projects supported under the 2011 Grant are provided in Appendix C. The final project budgets under the 2010 Grant were provided in the NPS Program 2015 annual report.

The following sections summarize the cumulative accomplishments associated with the Management Plan objectives during the period of January 1, 2015 through December 31, 2016.

II. Waterbody Prioritization

Prioritization Objective: Provide direction for the delivery of financial and technical assistance to assess, restore or protect waterbodies impaired or threatened by NPS pollution

The NPS Program prioritization process continues to be in a state of transition due to delays in the implementation of the Basin Water Quality Management Framework (Basin Framework) and TMDL visioning process. Consequently, given the NPS Program connection with the TMDL Program and Basin Framework, the NPS Program prioritization process has also not yet been fully updated. As the various programs and initiatives evolve, it is expected the establishment of the NPS Program prioritization process will be accomplished concurrently with the implementation of the Basin Framework and TMDL Strategy as well as with the establishment of basin stakeholder advisory groups (BSAGs) in state's 5 major river basins.

The Red River Basin is the first river basin scheduled to be addressed through the Basin Framework. Basin scale priorities established in the Red River Basin are expected to start being incorporated into the NPS Program prioritization process in 2018. Priorities will also be established for the other major river basins over the next 5 to 6 years to direct future watershed assessment, restoration or protection efforts. One of the main factors in this priority setting process will be the input and recommendations provided by the BSAGs. Interaction with the BSAGs will be an ongoing process to periodically evaluate new data and address ever-changing conditions in the basins to maintain the most current priorities. These BSAG priorities along with current TMDL priorities will be the focus of the NPS Program.

Implementation of the Basin Framework will take multiple years to cycle through all the major river basins in the state. As such, priority setting within the river basins will not be concurrent. During the interim, for those basins without established priorities, the NPS Program will continue to work with local entities to assess individual waterbodies and set priorities accordingly. This interim process is essentially the same process the NPS Program currently follows. As the implementation of the TMDL Strategy and Basin Framework proceeds, the basin-specific priorities established by each BSAG will be adopted to replace the interim priorities.

Currently, at the state level, the Integrated Report serves as the main information source for establishing NPS Program priorities. However, as the TMDL visioning process matures, the NPS Program will utilize the TMDL priorities to further refine its priorities. Those waterbodies ranked as high priority for TMDL development and those with approved TMDLs will be considered the highest priority waterbodies for assessment or restoration under the NPS Program. From a protection stand point, the assessed waterbodies with no beneficial use impairments will be also be recognized by the NPS Program as priority waters. Locally, the TMDL and NPS Program priorities will also be used for prioritization purposes, but other information such as public survey results; applied BMP data; and NPS Pollution Assessment Reports, will also be used to focus priorities and set schedules for specific watershed assessment, restoration or protection projects.

As a third implementation priority, if a common NPS pollutant source is contributing to the impairment of beneficial uses in multiple watersheds, the pollutant source itself is identified as a high priority and targeted for abatement activities. Animal feeding operations, degraded riparian areas, and tile drainage systems are some of the longstanding statewide priority sources being addressed through the NPS Program. Reduction of continued inputs on unproductive cropland acres, impacted by factors such as frequent wet conditions and/or saline soils, is

another priority in many watersheds across the state. The Stockmen's Environmental Services Program, which is focused on livestock manure management and the Red River Riparian project, which is addressing degraded riparian areas are two long term projects addressing priority pollutant sources. The pending Precision Ag Business Planning project is an example of a project focused on reducing inputs on unproductive agricultural lands. The Precision Ag project is seeking FY17 Section 319 funding to support the purchase of planning software to aid producers in identifying unproductive cropland acres and determining alternative uses that will eliminate continued tillage and/or nutrient inputs on those acres.

Within the priority watersheds, further prioritization continues to be accomplished with the Annualized Agriculture Nonpoint Source Pollution model (AnnAGNPS) or the LiDAR-based Decision Support Tool (Support Tool). Both models are used to identify specific areas and/or sub-watersheds within the priority watersheds that are major sources of nitrogen, phosphorus and/or sediment. Maps generated by these models are used by the local project sponsors and staff to direct BMP planning and implementation efforts within the watershed projects.

The AnnAGNPS model is used throughout the state to map the target areas for all the priority watersheds receiving Section 319 support. Generally, the AnnAGNPS target areas range in number from a few to over one hundred per priority watershed. The AnnAGNPS priority maps are provided in the project implementation plans for all the approved watershed projects entered in GRTS.

The LiDAR-based Decision Support Tool (Support Tool) is a relatively new prioritization process that was first initiated in the Wild Rice River Basin in 2014. This Support Tool is similar to the AnnAGNPS model in that it provides the means to identify priority sub-watersheds and target areas within the basin. However, the LiDAR mapping used by the Support Tool is much more refined, which enables the user to "zoom-in" to the field scale to identify critical sites for BMP planning purposes. The Support Tool is currently only available in the Wild Rice River Basin and under development for the James River Basin.

The Support Tool being developed for the James River Basin will also include a computer application referred to as the "Prioritize, Target and Measure Application" (PTMApp). The PTMApp will allow the user to easily access a multitude of data products developed by the Support Tool to describe water quality management needs; establish priorities; and identify specific types of BMP needed to address the management priorities. The PTMApp can be applied at the basin level as well as within the 12 digit hydrologic units in the basin. Estimated downstream load reductions at multiple sites as well as the estimated economics for various BMP scenarios are additional PTMApp outputs. The Support Tool and PTMApp for the James River Basin are scheduled to be completed by June 2017.

Although most of the progress to date has only involved start-up activities, the efforts have created the foundation for the continued development of a more comprehensive prioritization process. The waterbody prioritization tasks and accomplishments for the January 2015 - December 2016 reporting period are provided in Appendix A.

III. Resource Assessment

Assessment Objective: Document beneficial use and water quality conditions of priority waterbodies and/or watersheds and identify the sources and causes of beneficial use impairments.

Projects designed to assess and document the extent of beneficial use impairments associated with NPS pollution continue to be a critical component of the NPS Program. Data collected through assessment efforts are used to define state and local NPS pollution management priorities as well as to provide direction for ongoing and future educational initiatives. As the Basin Framework develops, assessment projects at the basin level and watershed level (e.g., 12 & 10 digit hydrologic units) will also provide BSAGs the necessary information to establish basin priorities for watershed restoration or protection, TMDL development, and public outreach. These priorities will be the foundation of their basin management plans and targeted for NPS Program technical and financial assistance. The first watershed assessments under the Basin Framework are tentatively scheduled to be initiated in the Red River Basin in 2018.

Assessment of beneficial use and water quality conditions continue to be accomplished through the Department's Surface Water Quality Management Program (SWQMP) monitoring programs as well as through local NPS Program assessment projects targeting small watersheds. At the state level, data (e.g., water quality, biological) collected by the SWQMP and local NPS Program watershed projects are complied and interpreted on a biennial basis to develop the Integrated Reports. These Integrated Reports, are not only used to prioritize watersheds for restoration work, but they also aid in directing local NPS Program partners to waterbodies that need further assessment to define beneficial use conditions and restoration needs. The TMDL prioritization process and Recovery Potential Screening Tool (RPST) will also be used to further prioritize the "303(d) listed" waterbodies to better direct future assessment efforts to the highest priority waterbodies in the state. However, it should be noted, there will also be instances, within the Basin Framework in particular, where local interests and priorities will direct NPS Program assessment activities toward "unlisted" waterbodies to determine beneficial use conditions as well as sources and causes of any use impairments. As the Basin Framework evolves, it is anticipated there will be an increasing number of "unlisted" waterbodies scheduled for preliminary assessments in 2018 and beyond.

Data collected through the local NPS Program assessments are used to develop TMDLs and/or NPS pollution assessment reports that: 1) document beneficial use impairments; 2) identify specific NPS pollutant causes/sources; and 3) establish goals for land use improvement and NPS pollution reduction. This same data is also used to help meet NPS Program assessment and prioritization objectives and update future Integrated Reports. The most current Integrated Report is posted on the Department's web site: http://www.ndhealth.gov/WQ/SW/A_Publications.htm.

Section 319 funding used to support assessment phase projects is provided through the NPS Program's "Development Fund." The Development Funds are unexpended Section 319 funds reallocated from other NPS projects or Section 319 funds included in the NPS Program Staffing and Support budget for assessment activities. Five development/assessment projects have been supported with Section 319 Development Funds since January 2015. The primary focus for

these development projects ranged from water quality and beneficial use assessment to the development of a prioritization tool for the James River basin. All the projects supported with Development Phase Funds are listed under "Development Phase Projects" in the GRTS. The Development Phase projects supported since January 2015 are listed in Table 1.

Table 1: Section 319 Budgets for Development Phase Projects Supported Since January 2015

Project Name	Section 319 Funding	Status
Fargo Water Quality Stewardship: Addressing WQ at the Community Level	$37,749	Complete
James River Basin Decision Support Tool Development Project	$303,404	Active
Little Missouri Tributary Assessment (Bowman SCD Support)	$1,163	Complete
Little Missouri Tributary Riparian & Stream Stability Assessment	$24,567	Active
Middle Sheyenne River Watershed Plan Development	$21,184	Complete

Similar to the waterbody prioritization activities, the NPS Program's assessment efforts are also in a state of transition. With the ongoing development of the TMDL Strategy; Nutrient Reduction Strategy; and Basin Framework, the planning and development of future NPS Program assessment activities will likely need to balance the priorities of the various statewide initiatives with local priorities as well as the priorities identified through the most current 303(d) list. This process is expected to evolve over the next two years. As the priorities are established by the different strategies and programs, the NPS Program assessment priorities will also need to be reviewed to identify similarities and coordination opportunities for future waterbody assessment projects. The status and products of the NPS Program assessment tasks for the January 2015 - December 2016 reporting period are provided in Appendix A.

IV. Project Assistance

Project Assistance Objective: Coordinate with local partners to secure sufficient financial and technical resources to support the development and implementation of priority watershed assessments; educational programs and watershed restoration or protection projects.

As a voluntary program, successful development and implementation of all NPS pollution management projects continues to be dependent on local support and involvement. Local participation during project development provides the opportunity to design project plans with goals and objectives that are focused on local and state water quality and NPS pollution priorities. Although the size, type, and target audience of the local NPS projects has varied greatly, they all share the same basic objectives. These common objectives are: 1) increase public awareness of NPS pollution, 2) reduce/prevent the delivery of NPS pollutants to waters of the state, and 3) disseminate information on effective solutions to NPS pollution.

Financial and technical assistance provided by the NPS Program has been used to support local staff, BMP implementation, water quality monitoring, data interpretation, and public meetings or other information/education (I/E) events. The Section 319 funding allocated to the local sponsors has been provided at a 60% Section 319 and 40% local matching ratio. The local match, provided in the form of cash and/or in kind services, is derived from a number of partners including, soil conservation districts, water resources boards, city councils, private foundations and trusts, landowners, nongovernmental organizations (NGO), agricultural groups and other state agencies. Appendix B lists the January 2015 - December 2016 Section 319

expenditures of the locally sponsored projects supported under the 2011-2016 Grants. The 2010 and 2011Grants, which were active during part of the Management Plan period, were closed out in 2015 and 2016, respectively. The ending Section 319 budgets for the projects supported under the 2010 Grant were provided in the 2015 Annual Report and the ending Section 319 budgets for projects supported under the 2011 Grant are provided in Appendix C.

The Natural Resources Conservation Service (NRCS) is the primary source of federal financial and technical assistance within most of the local NPS projects. Technical assistance provided by the NRCS has generally included staff time to assist with land use assessments, public meetings, educational events and/or farm unit planning. Office space and some equipment have also been provided to most of the NPS Program watershed projects. Despite declining budgets, the USDA cost share programs have remained extremely important to local NPS project sponsors as an additional funding source to support the implementation of BMPs within the watershed project areas. The Environmental Quality Incentive Program (EQIP), in particular, has continued to be a valuable program for helping many NPS projects meet their BMP implementation goals and objectives. When applicable, the type and amount of USDA BMP applied in the watershed project areas are provided in the project specific reports in the EPA Grants Reporting and Tracking System (GRTS).

From a state perspective, two significant sources of non-federal financial assistance were available the past two years for local NPS projects. These sources are the State Water Commission Trust Funds and the ND Outdoor Heritage Fund. These sources are not direct appropriations, but instead, they are state funds that are available through a competitive application process and subject to approval by the state agencies administering the funds. The budgets for these two state funding pools are set on a biennial basis by the state legislature.

The State Water Commission Trust Fund (SWC Trust Fund) has been a longtime source of state funding available for qualifying NPS Program projects. Qualifying projects are limited to NPS Program projects that provide BMP design assistance to other projects supported by the NPS Program. For the 2015/2017 biennium, $200,000 in SWC Trust Funds were awarded to the Department to support eligible projects. These funds were allocated to the Livestock Pollution Prevention Program, ND Stockmen's Association Environmental Services Program; and the NPS BMP Team. All of these projects are involved in the delivery of financial and technical assistance to design and/or install livestock manure management systems. The BMP Team also provides engineering services to develop construction designs for riparian restoration sites and other structural BMP scheduled for installation within active NPS Program project areas. The SWC Trust Funds are being used to supplement the 40% match requirements associated with the Section 319 funds awarded to each project.

A second source of state funding for NPS projects includes the ND Outdoor Heritage Fund (OHF). If state tax revenues are sufficient, the OHF can receive up to $40 million per biennium to support projects addressing natural resource management (including water quality) and outdoor recreation. Although this maximum allocation has never been met during any biennium, the OHF has been used to support a variety of projects, including some NPS projects. Since January 2015, five NPS projects have received a total of $1,433,924 in OHF funding. Specific NPS projects supported with OHF funds during the Management Plan period are listed

in Table 2. All of the OHF funds are being used to support the installation of BMP in the watershed project areas.

Table 2. Outdoor Heritage Fund allocations during the period of January 2015 – December 2016

Project Name	OHF Allocation
Riparian Grazing Systems Project*	$ 253,500
LaMoure County Memorial Park Streambank Restoration Project*	$ 695,424
Sheyenne River Sedimentation Reduction Project (2nd OHF Allocation)	$ 200,000
Homme Dam Watershed Project	$ 65,000
Powers Lake Watershed	$220,000
Total	**$ 1,433,924**

*Projects that only have 319 funds committed for staff. OHF funds will support all the BMP implementation.

Although state and federal funding allocations (e.g., Section 319 funds, USDA cost share, and OHF funds) are major components of NPS project budgets, cash and inkind match contributions from sponsoring entities and their partners are also a significant part of most local NPS project budgets. These local contributions typically represent a majority of the non-federal match commitments for the NPS projects. Consequently, the local sponsors and their partners, have not only been responsible for managing the NPS projects, but they have also been the main source for the non-federal financial support for the projects, which, in turn, has enabled more effective delivery of the NPS Program. Table 3 lists some of the sponsoring entities and financial partners that have provided technical and/or financial support for the development, implementation and/or management of NPS projects during the Management Plan period.

Table 3. Local NPS project sponsors and financial partners

Soil Conservation Districts	State Water Commission	Water Resource Districts N.D
Department of Agriculture	Grazing Lands Coalition	RC&D Councils
ND State University	ND Stockmen's Association	Ducks Unlimited
Industrial Commission (OHF)	NDSU Extension Service	Landowners/Producers
Valley City State University	ND Game & Fish Department	

Section 319 funding has always been the main source of financial support for the NPS Program. Estimated Section 319 expenditures under the 2011– 2016 Grants since January 2015 were $6,993,301. Approximately 11.2% of the 319 funds (i.e., $783,983) were used to support NPS Program staff and the balance (i.e. $6,209,318) was awarded to local NPS projects. Estimated non-federal match to the Section 319 funds was $4,662,201. The non-federal match expended on NPS Program staffing was provided through the State General Fund and the balance of the non-federal match requirements for the reporting period was provided through the local projects in the form of cash or inkind services. The primary local match contributors were Soil Conservation Districts and participating producers and/or landowners installing BMP.

Technical and financial assistance provided by the NPS Program is generally initiated during the assessment/prioritization phase of local projects and continued throughout the implementation of the projects. In addition to the Section 319 financial support, the types of technical assistance provided to local projects included: project oversight; water quality sample analysis; project review and comment; training for sample collection and project management; quality assurance project plan development; distribution of educational materials; and biological

monitoring support. Department personnel (i.e., 10 FTE) involved in the delivery of NPS Program financial and technical assistance are as follows:

- Water Quality Division Director & Surface Water Program Manager - Program Supervision (0.50 FTE)
- NPS Program Coordinator - Program Administration (1 FTE)
- Environmental Scientist - Monitoring/Assessment Assistance (2 FTE)
- Watershed Planning & Information/Education Coordinator - I/E Assistance (1 FTE)
- Microbiology and Chemistry Lab Personnel - Sample Analysis (2 FTE)
- Ground Water Program Personnel - Aquifer Assessment Project (3 FTE)
- Secretarial Assistance (0.5 FTE)

The roles and responsibilities of the Department staff involved in the NPS Program are described in the NPS Program Staffing and Support Workplans associated with each Section 319 Grant. These workplans are attached in the GRTS under "NPS Program Staffing and Support Program" for each applicable grant.

Since January 2015, forty five NPS pollution management projects were provided financial and technical assistance. These projects include 23 watershed projects; 13 educational projects; and 5 assessment/development projects. Another 4 projects, defined as support projects, were also provided assistance to address specific priority issues (e.g., manure management, soil salinity, etc.) or provide engineering services to the local watershed restoration projects. Section 319 expenditures, to date, for the projects supported under the 2011–2016 Grants are listed in Appendix B and the ending Section 319 budgets for projects supported under the 2011 Grant are listed in Appendix C. The final budgets for projects supported with FY2010 Section 319 funding were provided in the 2015 Annual Report.

The local projects supported with Section 319 funds can be grouped under one of seven categories. Inclusion in a particular category is primarily based on the goal of the project. Table 4 lists the cumulative Section 319 expenditures during the reporting period for each of the NPS project categories.

Table 4. Section 319 Expenditures per Project Category: January 1, 2015 – December 31, 2016

Project Type *	Cumulative 319 Expenditures	Percent of Total 319 Expenditures
Development Phase - NPS Assessment	$ 280,205	4.5%
Development Phase – TMDL Development	$ 0	0.00%
Education - Demonstration	$ 188,364	3.0%
Education - Public Outreach	$ 1,368,839	22.1%
Support Projects (TA or FA)	$ 1,341,593	21.6%
NPS Assessment - Multi Year Grant Award	$ 0	0.00%
Watershed Projects	$3,030,317	48.8%
Total	**$ 6,209,318**	**100%**

*NPS Program staffing and support has not been included in the table to more accurately display the distribution of Section 319 funding between the local project categories.

As indicated in Table 4, about 53% of the local project expenditures during the reporting period were associated with watershed projects and NPS assessment phase projects. In addition to the watershed-based projects, the NPS Program also funded several support projects that provided technical or financial assistance to the watershed projects to plan and implement certain types of BMP. When the Section 319 expenditures of the support projects are taken into account, the percent of Section 319 expenditures associated with watershed-based projects increases to approximately 75%. This watershed emphasis is consistent with the NPS Program goal to implement 15 watershed assessments and 20 watershed restoration projects during the 2015-2020 Management Plan period. A map showing the location of the watershed projects active during the Management Plan period is provided in Appendix E.

Statewide and local public outreach efforts represent another very important component of the NPS Program. Although Section 319 expenditures on educational projects only represent about 25% of total NPS project expenditures, the projects focused on public education are critical for establishing the local awareness needed to ensure successful implementation of watershed-based projects and the NPS Program. Summaries of the educational programs and projects supported during the Management Plan period are provided in Section VI.

Within any NPS project, some type of external financial and/or technical assistance is needed to effectively implement the project. The specific type and amount of assistance needed by the NPS projects is variable and usually dependent on several factors. The most common factors needed to ensure a successful project are: 1) strong local leadership; 2) technical resources to develop and implement the NPS project plans; 3) landowner and/or public involvement; and 4) financial resources to support implementation. The NPS Program objective and tasks for project assistance have continued to focus on providing the means to ensure the local sponsors have the “tools” they need to implement the most effective NPS projects. Appendix A provides a summary of the accomplishments of NPS Program assistance during the reporting period.

V. Coordination

Coordination Objective: Maintain and expand partnerships at the state and local levels to diversify input for project development and implementation as well as to increase opportunities for securing and coordinating resources to more efficiently address identified NPS pollution impacts.

With limited resources at the state and local level, delivery of the NPS Program requires a significant amount of coordination with federal, state, and local agencies; landowners; agricultural producers; and NGOs. The primary means for coordinating statewide efforts is through direct interaction with resource management partners (e.g., NRCS, NDASCD, and Extension Service) as well as through the North Dakota NPS Pollution Task Force (Task Force).

Locally, coordination continues to be accomplished through direct contact and participation with local resource management groups such as soil conservation districts, water resource boards and NRCS. However, as the Basin Framework is initiated, local project advisory committees will be consolidated to establish basin stakeholder advisory groups (BSAGs). Once established, the BSAGs will play a lead role in facilitating coordination between all entities with interests in water quality management in their basin. Through the Basin Framework, technical advisory groups (TAGs) will also be formed by the BSAG. The TAGs will provide the avenue for state and federal resource professionals (including SWQMP staff) to coordinate resources and participate in the decision-making process for water quality and NPS pollution management in the major river basins in the state. Establishment of the first BSAG in the Red River Basin will be initiated through a series of public meetings and is scheduled to be accomplished in 2017/2018.

At the state level, the annual Task Force project proposal review process has provided the forum to connect local NPS project sponsors with potential partners on the Task Force. During the 2016 Task Force review process, the members were given the opportunity to become familiar with nine different NPS projects seeking FY17 Section 319 financial support. Conversely, the local project sponsors are also given the opportunity to describe their projects to multiple state and federal organizations in one setting. Through this interaction during the 2016 review process, discussions between the FY17 watershed projects and NRCS were initiated to identify potential options for supplementing local BMP budgets with EQIP cost share.

The partnership between the NPS Program and NRCS is a key relationship for most of the state's NPS pollution management efforts. Nearly all of the Section 319 watershed projects utilize USDA Programs (e.g. EQIP, EWP, and CRP), to expand the amount of resources available for BMP planning and implementation. When possible, the NRCS also provides training and technical support to local NPS project staff to assist them in developing conservation plans, evaluating range conditions, and planning or designing manure management systems. Most local watershed project coordinators are also co-located in a NRCS field office, which has strengthened coordination with the NRCS district conservationists when providing farm planning assistance to producers. By coordinating multiple funding sources and co-locating staff with NRCS, the NPS projects have been able to implement more BMPs, which has enhanced the overall effectiveness of their NPS pollution abatement efforts. Given the

benefits of the NRCS/NPS project partnership, all NPS project sponsors are encouraged to utilize USDA programs to compliment Section 319 funds budgeted for BMP implementation.

Coordination and cooperation between the NRCS and NPS Program was strengthened in 2015, with the signing of a memorandum of understanding (MOU) that recognizes the Department as a conservation cooperator. With the MOU, data sharing has been simplified and the affects of applied BMP on water quality can be interpreted with more confidence in the USDA National Water Quality Initiative (NWQI) watersheds as well as the local watershed projects supported with Section 319 funding. This same NRCS BMP data has also been incorporated into the RPST to serve as an indicator for producer participation when prioritizing subwatersheds (e.g., 12 digit HU) in the river basins.

The NDSU Extension Service (Extension Service) is another major partner of the NPS Program. At the state level, the Extension Service has maintained its lead role in delivering an educational program focused on improving livestock manure management. This program, not only assists the NPS Program in educating livestock producers, but it also serves as a technical support program for local NPS projects by providing planning assistance focused on manure management. During the past two years, the NDSU manure management specialist has assisted most of the active watershed projects through direct one-on-one assistance or through participation in various local educational events. In addition to this program, the Extension Service is also sponsoring other statewide or regional projects focused on the development of riparian ecological site descriptions and the dissemination of information on soil salinity and soil health management. The Extension Service has also submitted a FY17 Section 319 project proposal to provide leadership training to soil conservation districts and other local resource management organizations. County Extension Agents also continue to be involved in the planning and delivery of many of the educational events sponsored by the local NPS projects.

Local project sponsors have remained the primary avenue for coordinating programs within the NPS project areas. Soil conservation districts are generally the lead sponsors for the waterbody assessments and watershed projects, while Extension Service, state agencies and NGOs are typically the sponsors for the education and support projects. Primary responsibilities of the project sponsors include: 1) project plan development; 2) project administration; 3) progress reporting; 4) financial and technical assistance delivery; 5) PIP revisions; and 6) public outreach and education. Within the Basin Framework, the BSAGs will have these same responsibilities, but they will also have a larger role in setting priorities for the basin and development and implementation of the basin water quality management plan. Membership on the BSAGs will also be more diverse to include representation from the entire basin. However, similar to the current project sponsor members, the BSAGs will typically have a “core” membership of soil conservation districts, county Extension agents, and water resource boards.

Given the agricultural focus of most projects, SCDs will continue to be the lead sponsor for most of the local NPS projects and key members of the BSAGs. The SCDs provide the local leadership necessary to implement and manage projects as well as the “familiar face” to encourage greater producer/landowner involvement. The SCDs long-standing partnership with NRCS also strengthens the coordination of cost share funds provided through the EQIP and NPS Program. Other local or regional organizations that will also be important partners and

sponsors include universities; state agencies, and water resource boards. The organizations currently working with the NPS Program and the general type of assistance each entity provides are listed in Appendix D. Coordination with these organizations and others is described in the Management Plan coordination objectives and tasks listed in Appendix A.

VI. Public Out-Reach and Education

Public Out-Reach and Education Objective: Strengthen support for and participation in NPS pollution management projects by increasing public awareness and understanding of NPS pollution impacts and the solutions for restoring and protecting those water resources impaired or threatened by NPS pollution.

Delivery of a balanced information and education (I&E) program throughout the state has always been a critical component of the NPS Program. While watershed projects are effective at abating known sources and causes of NPS pollution, the state and local I&E projects are the primary means for creating widespread awareness and understanding of NPS pollution issues to ensure support for future NPS pollution management efforts. The delivery method, NPS pollution topic, and target audience of the educational projects vary considerably, which is reflective of the diversity in NPS pollution education in the state. However, despite the differences, the state and local I&E projects deliver a common message on NPS pollution impacts and solutions and form the delivery network for the NPS Program's statewide educational program.

To maintain a balanced educational program, the NPS Program coordinates with several partners to implement projects targeting all age groups. During the reporting period, 42% of the state's educational projects focused on teacher/youth education and the other 58% targeted the adult population. In most cases, the programs targeting adults placed particular emphasis on reaching agricultural producers and individuals actively involved in farm and ranch resource planning. The agricultural emphasis is also not lost in the youth programs, where agricultural issues and the associated solutions to agricultural NPS pollution are addressed to some degree.

For youth education, the NPS Program has continued to support four long term education programs focused on K-12 students and teachers. These projects include the ECO ED Program, Project WET, Envirothon and The Regional Environmental Education Series (TREES). Each project is focused on a slightly different audience and delivers a message that compliments the messages of the other three projects. As a fifth component to the youth education efforts, the Prairie Waters Education and Research Center (Center) was established in 2010. The Center strengthened the ongoing youth education efforts by providing a location to conduct some of the educational programs as well as by providing training for facilitators or teachers involved in water education for students. The Center has also manages the River Watch Program, which facilitates a long term, volunteer monitoring program for high school students.

As previously indicated, a majority of the NPS Program's I&E projects have continued to target the adult population, with emphasis placed on reaching individuals involved in the agricultural industry. Collectively, these I&E projects address a variety of agricultural topics, including; manure management, nutrient management, soil health, cover crops, and grazing rotations. Soil

health, in particular, has become the center piece for many of the educational projects supported by the NPS Program. With good soil health recognized as an indicator of sustainable cropland and grazing land management, a systems approach is viewed as the foundational tool for achieving that good soil health, thereby reducing the transport of NPS pollutants from agricultural fields to improve and/or protect water quality. This holistic approach is the main message being emphasized at many of the NPS Program educational events and programs.

A third component of the NPS Program's education network, that is often overlooked, is the educational events supported by the local watershed projects. Although the watershed projects are not specifically focused on education, they have implemented a variety of agriculture-based educational events (e.g., tours, newsletters, and BMP demonstrations). These local events have generally attracted between 10-25 individuals, although some of the larger events have recorded over 200 participants. Cumulatively, there have been thousands of people who have benefited from the local watershed education programs each year.

Twelve I&E projects have been supported by the NPS Program during the reporting period. These I&E projects range in size from local county events to statewide programs. Target audiences included the general public, K-12 students, teachers, agricultural producers and local resources managers. The products of the educational efforts are just as diverse, with outputs such as newsletters, workshops, lyceums, BMP demonstrations, tours, mentoring services, fact sheets, radio ads, and videos. Table 5 provides a summary of the goals and target audiences of the I&E projects funded since January 2015. More detailed information on each project is also provided in the GRTS.

Table 5. Goals and target audiences of I&E projects supported from January 1, 2015 through December 31, 2016

Project Name & Contact Person	Primary Target Audience	Major Goals
Envirothon Program	Students in grades 9-12	Deliver a statewide program that strengthens problem solving skills by providing the opportunity to learn and use science based information to identify and prescribe potential solutions that address NPS pollution and other natural resource concerns.
The Regional Environmental Education Series (TREES)	Students in grades K-12	Deliver a series of lyceum-style programs to schools to create greater appreciation for the state's water resources and increase participants understanding of the importance of wise use of all natural resources.
NDSU Nutrient Management Educational Support Program	Resource Managers & Livestock Producers	Maintain a statewide program focused on the development and delivery of training programs, bulletins, workshops, demonstrations, and one-on-one planning assistance to promote better management of livestock manure.
ND Project WET (Water Education for Teachers)	K-12 Teachers & Students	Deliver a variety of educational offerings throughout the state to increase participants' knowledge and understanding of NPS pollution impacts to our water resources and potential solutions to those impacts.
Statewide ECO ED Program	Students in grades 6-8	Provide technical and financial assistance for local soil conservation districts to conduct one-day tours or two-day camps that provide hands-on outdoor instruction on water quality, soil/erosion; wetlands, prairies, and woodlands.

Project Name & Contact Person	Primary Target Audience	Major Goals
ND Water Wisdom Project	Resource Managers & Agricultural Producers	Deliver an educational program in south central and western ND that supports a variety of local educational offerings (e.g. workshops, tours, newsletters, demonstrations, etc.) focused on agricultural management practices that are effective at controlling NPS pollution. Two regional soil health workshops and one statewide grazing planning workshop will also be supported.
Discovery Farm Program	Resource Managers & Agricultural Producers	Establish a series of BMP demonstration sites on three working farms. These sites will be used to evaluate the water quality benefits of various BMP. Water quality and quantity will be collected to quantify the positive or negative impacts of the applied BMP. The current focus of the program is on BMP associated with livestock manure management and tile drain management.
Prairie Waters Education Center	Resource Managers & K -12 Teachers & Students	Develop and manage an educational center to provide training and educational offerings addressing topics such as water quality monitoring; stream morphology; macroinvertebrate sampling and watershed management. Training and instruction will include both classroom style presentations and in-field educational sessions.
Menoken Farm Soil Foodweb Project	Resource Managers & Agricultural Producers	Utilize the Menoken demonstration farm to showcase farming systems that improve soil health; increase water use efficiency and improve water quality. Management of the demonstration fields will focus on the importance of continuous live roots in the soil, crop diversity; livestock grazing, and cover crops for improving soil health. Tours, newsletter, and meeting presentations will be used to disseminate information gained through the Menoken farm project.
Eastern ND Soil Salinity Demonstration Network	Resource Managers & Agricultural Producers	Increase landowner and resource manager awareness and understanding of soil salinity and soil health issues in eastern ND. The Soil Health Specialist employed by the project will: 1) promote proper management and protection of saline areas; 2) train local SCD staff and others on management options for saline areas; 3) maintain demonstration sites; and 4) disseminate information regarding soil health and management of saline areas. Educational outlets will include demonstration sites, workshops, Extension bulletins, videos, tours, and conferences.
Ranchers Mentoring and Outreach Program	Farmers and Ranchers	Promote land management systems that will improve water quality and soil health. A network of mentors will be established to provide interested ranchers technical support and advice (from fellow ranchers) regarding management options that can be used to improve soil health and water quality as well as maintain the sustainability of their ranch or farm.
Partners for Improving Water Quality I&E Program	Resource Managers & Agricultural Producers	As a follow-up phase to the Water Quality Mentorship and Outreach Program, the project will continue to deliver a balanced educational program in southwestern ND that promotes concepts and practices that will improve cropland and grazing management and protect water quality.

*****Resource managers include individuals from NRCS, Extension Service, Soil Conservation Districts, 319 Projects, State Agencies, Private Organizations, Water Resource Districts, etc. involved in farm planning and resource management.

The NPS Program's objective and tasks for education and outreach have remained focused on establishing an educational foundation that will lead to a well informed public that readily

supports current and future NPS pollution management efforts. Appendix A provides a summary of the accomplishments of NPS Program education tasks during the reporting period.

VII. Program Evaluation

Evaluation Objective: Document the effectiveness and success of the NPS Program and its state and local partners in identifying and addressing the sources and causes of NPS pollution impairing or threatening beneficial uses of waters of the state.

Evaluation of NPS Program accomplishments are primarily based on data collected within the watershed project areas; documented progress toward individual project goals and objectives; and completion of measurable outputs identified in the Management Plan. The GRTS; annual and final project reports; EPA water quality program measures (e.g., WQ10, SP12); and annual program reports will be the primary means used to disseminate information on NPS Program and local project progress and success.

For evaluation at the local project level, measurement of progress toward established goals is being accomplished through different monitoring approaches that are dependent on many factors. These factors include such variables as project size; project goals; planned BMPs; sources and causes of NPS pollution; target audience; land use; location; and type of beneficial use impairments. The monitoring methods employed are also variable and may include: photo-monitoring, exit surveys, pre/post testing, computer modeling, biological monitoring; water quality monitoring; BMP tracking; etc. The monitoring plan or Quality Assurance Project Plan (QAPP) for each project addresses these variables by describing, in detail, how the project will be monitored as well as how the project will be evaluated. Upon completion of a project, all data and information collected for evaluation purposes is interpreted and incorporated into the final project reports. For the watershed projects in particular, the final reports include summaries of the applicable water quality and/or biological data to describe progress toward the project-specific water quality and beneficial use improvement goals.

Overall, the success of the NPS Program is directly linked to the success of the local projects supported by the program. As a consequence, the evaluation of NPS Program success is based almost exclusively on the cumulative accomplishments of the locally sponsored projects. These accomplishments are described in the annual and final project reports submitted by the local sponsors. All the annual project reports due in 2016 have been entered in the GRTS. Specific projects that have posted final project reports in the GRTS in 2016 are listed in Table 6.

Table 6. Final project reports entered in the GRTS for projects completed in 2016

Final Report/Project Name	Grant Number	GRTS Project Number
Livestock Pollution Prevention Program – Phase II	C9008633-11	01
The Regional Environmental Education Series (TREES)	C9008633-11	03
Ranchers Mentoring Program	C9008633-12	09
Kelly Creek Watershed	C9008633-12	02
NPS BMP Team – Phase II	C9008633-12	04
Riparian Ecological Site Description Development	C9008633-12	08

From a program perspective, annual progress and progress by the end of the Management Plan period will be measured by evaluating the outcomes resulting from the completion of the tasks listed in Appendix A. The tasks described in Appendix A are a compilation of the actions the NPS Program must complete annually and over the course of the Management Plan period to achieve the goals and planned outcomes of the Management Plan. Evaluation of overall NPS Program progress will be based on the extent to which the NPS Program outcomes have been achieved on an annual basis as well as for the entire Management Plan period. Specific planned outcomes for the current Management Plan period and progress toward those outcomes are as follows:

1) Waterbodies assessed and associated TMDLs completed --- 15 assessed waterbodies with approved TMDLs or Alternative Plans (3/year) --- *All approved TMDLs are posted on the Department website* http://www.ndhealth.gov/WQ/SW/Z2_TMDL/TMDLs_Completed/B_Completed_TMDLs.htm. *No alternative plans were developed during the reporting period.*

2) Waterbodies with one or more restored beneficial uses – 5 waterbodies (1/year); 5 WQ-10 success stories --- *Since the initiation of the Management Plan, data collected within the watershed projects has not indicated beneficial use restoration for any of the targeted waterbodies. As such, the NPS Program has not been able to consistently submit WQ-10 success stories to EPA. This shortcoming is reflective of the ongoing challenges in documenting sustained in- stream or in-lake beneficial use improvements associated with relatively short term projects in agricultural watersheds. Given the dynamic nature of agriculture and limited resources, it is expected these challenges will persist for the duration of the Management Plan period. However, to attempt to address this challenge, the Management Plan includes additional actions for 2015-2020 to improve waterbody prioritization and assessment; BMP targeting; and local coordination, which are actions needed to address the "WQ10 reporting challenges."*

3) Waterbodies with improving trends in water quality and/or beneficial uses – 10 waterbodies (2/year); 10 SP-12 waterbodies --- Two *SP12 reports have been submitted for waterbodies demonstrating improving trends. The SP12 report for Antelope Creek in Richland County described the declining trends in the geometric mean concentrations for E. coli bacteria. A second SP-12 report was submitted for Shortfoot Creek in Sargent Co., which also showed declining trends in the E. coli bacteria geometric mean concentrations. These waterbodies will continue to be monitored to see if they qualify as WQ10 success stories in 2017 or 2018.*

4) Estimated annual nitrogen and phosphorus load reductions based on model results. Annual nitrogen and phosphorus load reductions will be approximately 100,000 and 50,000 pounds, respectively. --- *The estimated nitrogen and phosphorus load reductions reported in the GRTS in 2016 are 77,167 and 29,917 pounds respectively.*

5) Increased public awareness and understanding of NPS pollution issues in the state – 20% increase in survey respondents with a good understanding of NPS pollution issues. --- *Targeted surveys have been conducted within the assessment watersheds. Follow-up*

surveys and/or other measures will also be conducted to evaluate gains in public awareness and understanding.

6) Basin Stakeholder Advisory Groups (BSAGs) established in 3 of the 5 major river basins in the state – 3 BSAGs (1 BSAG established in 2015; 2017 & 2019) --- *The Red River basin will be the first basin targeted under the Basin Framework. Establishment of the BSAG for the Red River basin has been delayed due to time limitations. As such, the establishment of the Red River Basin BSAG has been rescheduled to be completed in 2017/2018.*

7) Basin Management Plans developed, in cooperation with the BSAGs, for 2 of the 5 major river basins in the state (1 Plan in 2017 & 2019) --- *Due to the delays in the formation of the BSAG, the target date for the completion of the management plan for the Red River basin has also been rescheduled for 2018/2019.*

Tracking the types of BMP applied and the affect the practices have on impaired use(s) and/or water quality continues to be the primary means for describing and documenting local watershed project progress and, ultimately, NPS Program progress. However, given the delayed water quality response to applied BMP in larger watersheds, the NPS Program depends on computer models during the short term to estimate pollutant load reductions resulting from the applied BMPs. Models such as the STEPL and the animal feedlot runoff risk index worksheet (AFRRIW) will compliment the in-stream or in-lake data by providing interim estimates on annual pollutant load reductions associated with applied BMPs. In future years, as the Basin Framework is implemented, post-project monitoring of the watershed projects will be much more feasible to gauge delayed beneficial use improvements resulting from applied BMP. As a consequence, post-project monitoring will eventually become a major component of the NPS Program Monitoring Strategy. The first post-project monitoring opportunities under the Basin Framework are expected to become available in 2020.

Although the information on applied BMP cannot replace the measurement of actual beneficial use improvements or pollutant load reductions, it does readily show how the sources and causes of NPS pollution impairments are being addressed in the state. Cumulative BMP expenditures also provide some insight on the extent to which the NPS Program is focused on BMP implementation. With approximately 70% of cumulative project costs associated with projects that are focused on the design and/or implementation of BMPs, it is apparent the NPS Program and its partners are maintaining a significant on-the-ground emphasis to address NPS pollution. The specific types and amounts of BMP supported during the Management Plan period are listed in Appendix F. Table 7 also shows the cumulative Section 319 expenditures per BMP category to provide a perspective on the most common type of BMP implemented from January 1, 2015 through December 31, 2016.

Table 7. Cumulative Section 319 Expenditures per BMP Category – January 1, 2015 thru December 31, 2016

BMP Category	Section 319 Expenditures	Percent Expenditures
Cropland Management	$121,137	5.4%
Grazing Management	$464,052	20.8%
Livestock Manure Management System (Full Systems)	$1,110,532	49.8%
Livestock Manure Management System (Partial Systems)	$138,392	6.2%
Erosion Control /Upland Tree Plantings/Vegetative Buffers	$15,000	0.7%
Miscellaneous Practices	$339,101	15.2%
Riparian Area Management	$41,456	1.9%
TOTAL	**$2,229,670**	

Overall, the goals and objectives of the Management Plan are basically on track, with the exception of ongoing shortfalls with the WQ-10 and SP-12 reporting agreement. This does not indicate a lack of effort by the local projects. Instead it is more related to factors such as limited producer participation; delayed responses to applied BMP; ever changing cropping systems, and variability in weather patterns. The availability of consistent and sufficient local resources for post-project monitoring over an extended period has also been a common limiting factor. These issues and others have always complicated the measurement of beneficial use improvements in moderately sized watersheds (i.e., 25,000 – 150,000 acres) over a short time period (i.e., < 10 years).

Under the Management Plan, two significant actions have been included to address the SP-12 and WQ-10 shortfalls as well as to improve the delivery of NPS Program assistance. As a first step toward improving the delivery process, the NPS Program has been involved in efforts to implement the Basin Framework to more effectively target financial and technical assistance at the basin scale. This assistance will be used within each of the 5 major river basins to develop basin management plans; support local assessments; develop and implement watershed restoration projects; conduct educational events and monitor long term progress. The targeted assistance and long term basin management process should also provide more opportunities for consistent post-project monitoring; increased local involvement in project planning and implementation; as well as facilitate development of stronger partnerships with local resource managers. The post-project monitoring, in particular, will allow the full effects of applied BMP to be measured over a longer time period, which, in turn, should allow for more accurate documentation of water quality and beneficial use trends that might have been missed during the actual project period. In many cases, this extended dataset should provide the information needed to satisfy future WQ10 and SP12 reporting requirements.

As a second action, the NPS Program has also been coordinating with the International Water Institute to develop a prioritization and planning tool based on Light Detection and Ranging (LiDAR) mapping. This decision support tool compliments the basin management process by providing the mapping needed to more accurately prioritize where BMP should applied. Given the resolution of the LiDAR mapping, these priority maps will greatly enhance the project planning process and ensure future BMP are targeted toward the most critical areas. Through better prioritization, all aspects of the Management Plan should also become more effective.

Appendix A
Status of the 2015-2020 Management Plan Objectives & Tasks
January 1, 2015 – December 31, 2016

<u>Waterbody Prioritization Objective:</u> Provide direction for the delivery of financial and technical assistance to assess, restore or protect waterbodies impaired or threatened by NPS pollution.

Task 1: Based on the most current Integrated Report, identify NPS Program priority waterbodies in each of the five major river basins in the state.

Outputs	Total Planned Quantity	2015-16 Planned Quantity	Status/Actual Outputs to Date
NPS Program priority waterbodies identified for assessment, restoration or protection	1	1	On Schedule – Through the TMDL Visioning process, the NPS Program coordinated with the TMDL Program to identify statewide TMDL priorities. These priorities are organized according to river basin and will be further prioritized with the Recovery Potential Screening Tool (RPST) when the Basin Framework is implemented in 2017/18. The Red River Basin will be the first basin targeted under the Basin Framework. During the interim, as the Basin Framework is implemented, TMDLs, watershed assessment data and local input will be used to prioritize the watersheds in the river basins not yet being targeted by the Bain Framework process.

Task 2: Coordinate with the other SQWMP programs (i.e., TMDL, assessment and monitoring) to develop and apply the ND Recovery Potential Screening Tool (RPST) to establish state and basin level priorities.

Outputs	Total Planned Quantity	2015-16 Planned Quantity	Status/Actual Outputs to Date
Functioning ND Recovery Potential Screening Tool (RPST)	1	1	Completed: The RPST has been developed for ND to aid in setting priorities at the 8 and 12 digit HU level. A training session was held in December 2015 to train resource managers and gain feedback on the tool.
State level NPS Program priorities established in 2016 at the 8 digit HU scale for watershed assessment, restoration and protection	1	1	Behind Schedule: The ND RPST will first be applied in the Red River Basin in 2017/2018.
Apply the RPST within the five major river basins to establish five priority lists at the 12 digit HU scale for the assessment, restoration and protection	5	1	Behind Schedule: Application of the RPST has been revised. The RPST will be used to assist with prioritization of the 8 and 12 digit HUs in the Red River basin in the fall/winter of 2017/2018.

Task 3: Utilize the AnnAGNPS model and, where available, the LiDAR-based Decision Support Tool to assist local partners with the identification and ranking of priority sub-watersheds and locations within priority watersheds.

Outputs	Total Planned Quantity	2015-16 Planned Quantity	Status/Actual Outputs to Date
20 AnnAGNPS maps for approved watershed projects & 2 Decision Support Tool priority maps in the James and Wild Rice River Basins in 2016	22 maps	7 maps	On Schedule: AnnAGNPS cropland and non-cropland priority maps were developed for 3 watershed projects requesting FY17 Section 319 funding and 9 watershed projects supported with FY15 and FY16 Section 319 funds. --- The Decision Support Tool is being utilized locally in the Wild Rice Basin and a second Support Tool is scheduled to be completed for the James River Basin in the spring of 2017.
New Decision Support Tool developed for part of the Sheyenne River basin	1	NA	Pending: Development of the Support Tool for the Sheyenne River Basin is scheduled for 2019

Task 4: Using the state and basin level waterbody priority lists as a starting point, coordinate with the applicable soil conservation districts and basin management committees (as they are formed) to further define local priorities and set implementation schedules for waterbody assessment, restoration and/or protection projects.

Outputs	Total Planned Quantity	2015-16 Planned Quantity	Status/Actual Outputs to Date
Local waterbody assessment and restoration priorities established for 5 soil conservation districts and 3 river basins	8	2	On Schedule: Morton and Cass SCD's have established an informal prioritization process for assessing watersheds in their counties. Morton SCD is currently working on their third watershed assessment and Cass SCD initiated their first assessment in 2016. --- The first assessment prioritization efforts through the Basin Framework will likely occur in 2018.

Task 5: Determine NPS project funding priorities through the annual NPS Pollution Task Force project review process

Outputs	Total Planned Quantity	2015-16 Planned Quantity	Status/Actual Outputs to Date
Task Force comments and recommendations on draft project proposals and relative priority rankings.	7-10 Projects annually	7-10 Projects annually	On Schedule: Task Force comments were received for 9 projects requesting FY17 Section 319 funding.
Final project implementation plans for 7-10 projects approved for Section 319 financial support.	7-10 Projects annually	7-10 Projects annually	On Schedule: 12 projects were approved for FY16 funding in February 2016

<u>Assessment Objective:</u> Document beneficial use and water quality conditions of local priority waterbodies and identify the sources and causes of beneficial use impairments.

Task 1: Coordinate with local partners to develop Quality Assurance Project Plans (QAPP) for 15 priority waterbodies scheduled for assessment.

Outputs	Total Planned Quantity	2015-16 Planned Quantity	Status/Actual Outputs to Date
Watershed-specific Quality Assurance Project Plans (QAPPs) for 15 targeted waterbodies	15	3	On Schedule: QAPP's were developed for watershed assessments for Big Muddy Creek in Morton Co.; Swan Creek in Cass Co.; Lake Elsie in Richland Co. and Painted Woods Creek in McLean Co.

Task 2: Complete the QAPP objectives and tasks for each targeted waterbody to document beneficial use conditions; identify sources and causes of NPS pollutants impairing or threatening the beneficial; determine land management needs and gauge local support.

Outputs	Total Planned Quantity	2015-16 Planned Quantity	Status/Actual Outputs to Date
15 priority maps developed with AnnAGNPS or a River Basin Decision Support Tool (where available) for the watersheds of each assessed waterbody	15 Maps	4	On Schedule: AnnAGNPS maps have been developed for all the watershed assessment projects scheduled under Task 1.
Water quality/quantity and macroinvertebrate data collected from approximately 45 sites. Approximately 900 samples will be collected from the sites	900 Samples	240	Ongoing: All the water quality and macroinvertebrate samples scheduled for the 2015-216 were collected.

Outputs	Total Planned Quantity	2015-16 Planned Quantity	Status/Actual Outputs to Date
Summary of planned and applied NRCS BMPs per 12 digit hydrologic unit (HU) in the watersheds	15 Summaries	4	On Schedule: Access to the NRCS BMP data was approved in early 2015 and is being used in the assessment watersheds to evaluate the type and amount of USDA BMP applied in the watersheds.
Survey results describing watershed resident and landowner/operator awareness of NPS pollution impacts, sources, causes and solutions as well as their degree of interest in future restoration of protection initiatives in the watershed.	15 Surveys	4	Behind Schedule: A landowner survey has been completed in the Bid Muddy watershed and is pending for the Painted Woods watershed. The survey for Swan Creek watershed has been postponed due to minimal responses on previous surveys in that area. A cabin owner survey is also tentatively scheduled for 2017 for the Lake Elsie project.
Characterizations and ratings (e.g., good, fair, poor , etc.) of riparian conditions in 15 assessed watersheds	15	4	Behind Schedule: Rapid Geomorphic Assessments were completed for Big Muddy Creek in Morton Co. and Antelope Creek in Grant Co.
NPS Pollution Assessment reports and TMDLs for the assessed watershed. 15 assessment reports or TMDLs	15	4	On Schedule: NPS pollution assessment reports have been completed for all the assessment projects supported Section 319 funds. When applicable, TMDLs are also completed for the assessed waterbodies by SWQMP staff.

<u>Project Assistance Objective</u>: Coordinate with local partners to secure sufficient financial and technical resources to support the development and implementation of priority watershed assessments; educational programs and watershed restoration or protection projects.

Task 1: Provide financial and technical assistance to local partners to develop and implement 15 watershed assessments.

Outputs	Total Planned Quantity	2015-16 Planned Quantity	Status/Actual Outputs to Date
15 contractual agreements committing approximately 3% of the annual Section 319 budget to plan and implement watershed assessment projects.	15	4	On Schedule: Contractual agreements to support assessment activities have been developed for four Little Missouri River Tributaries, Dogtooth Creek, Lake Elsie, Swan Creek and Big Muddy Creek.
Analytical support for sample analysis by the Department's Chemistry and Microbiology laboratories. The budget for each project also includes funding (i.e., 319 or 604(b) funding) to support analysis of macroinvertebrate or fish samples. Approximately 900 samples analyzed per year	900	240	On Schedule: All the water quality and macroinvertebrate samples scheduled for collection in 2015-2016 in the QAPP's have been collected within the assessment watersheds.
Technical support for development of 12 NPS Assessment Reports and/or TMDLs	12	1	On Schedule: Interim NPS assessment reports were developed for Swan Creek and Lake Elsie. The final assessment reports will be completed in 2017/2018. TMDLs completed, to date, by the SWQMP are posted on the website: http://www.ndhealth.gov/WQ/SW/Z2_TMDL/default.htm

Task 2: On an annual basis, assist with the development of 7-10 new NPS projects and manage contracts for 30-40 active/ongoing projects. These projects will include education, support and watershed projects.

Outputs	Total Planned Quantity	2015-16 Planned Quantity	Status/Actual Outputs to Date
Technical support to plan and develop approximately 35 project implementation plans for education, watershed, and/or support projects seeking Section 319 funding. Approximate break down of the project types is 20 watershed; 11 education and 4 support projects.	35	14	On Schedule: Assistance was provided for the development of plans for 21 projects seeking FY16 & FY17 Section 319 funding. These projects included 10 watershed projects, 6 Support Projects and 5 educational projects.
Two NPS Pollution Task Force meetings, annually, to review draft and final project proposals requesting Section 319 funding.	10	3	On Schedule: Two Task Force meetings have been conducted annually. Draft project proposals are reviewed in November/December and the final project implementation plans are reviewed February/March of each year.
New contractual agreements (7-10/year) committing approximately 80% of the annual Section 319 awards to sponsors of approved NPS projects. Over 50% of the FFY Section 319 award will be allocated to watershed-based projects, with the balance committed for assessments; education programs; support projects and NPS Program staffing.	35	14	On Schedule: Contractual agreements for the 24 projects awarded FY15 & FY16 Section 319 funding were completed in May/June of each year.
Active contractual agreements with 30-40 ongoing projects maintained annually	30 annually	30-40 annually	On Schedule: Annually, approximately 40 NPS project contacts have been managed to track expenditure of funds awarded through the FY11-FY16 Section 319 grants.

Task 3: Coordinate with NPS Program partners and local project sponsors to obtain technical and/or financial assistance through other state and federal sources to support project planning and implementation efforts.

Outputs	Total Planned Quantity	2015-16 Planned Quantity	Status/Actual Outputs to Date
Financial support from the ND Outdoor Heritage Fund (OHF) to supplement or expand the BMP budgets for 6 watershed projects annually. The financial target is the acquisition of approximately $1,500,000 annually from the OHF	OHF Support for 30 projects	9	Behind Schedule: Two projects were approved for OHF funding in 2015 and no projects were approved in 2016. Adjustments to the OHF eligibility policies have significantly limited the ability for NPS projects to gain approval for OHF funding. As a result, this task may be discontinued in 2017
Secure $200,000 in State Water Commission Trust Funds each biennium to support engineering costs associated with the development of BMP construction designs for NPS projects	Engineering Support	$200,000 per Biennium	On Schedule: $200,000 in SWC Trust Funding was awarded to three NPS Program projects for the 2015/2017 biennium.
USDA cost share through the EQIP and other NRCS programs. Also includes cost share assistance available through the National Water Quality Initiative and Resource Conservation Partnership Program	USDA Cost Share	USDA Cost Share	Ongoing: All the watershed project coordinators work with producers to solicit USDA cost share assistance, when applicable. The annual and final project reports indicate the amount of USDA support per projects.

Task 4: Evaluate the feasibility and benefits of alternative methods for supporting BMP implementation and planning in the watershed project areas and, when appropriate, develop applicable policies and agreements and incorporate the new policies into the NPS Program BMP Cost Share Guidelines and/or applicable sections in the Management Plan.

Outputs	Total Planned Quantity	2015-16 Planned Quantity	Status/Actual Outputs to Date
Draft guidelines for an outcome based cost share program. Initial draft guidelines will be focused on setting preliminary criteria for nutrient management	Draft Guidelines	NA	Pending: Scheduled for 2018
A pilot project, initiated in cooperation with a watershed project sponsor and other partners (e.g., Extension Service, NRCS, Commodity Groups, etc.) to evaluate the feasibility, acceptance and effectiveness of an output based cost share program	1 pilot project	NA	Pending: Scheduled for 2019
Annual updates to the ND NPS Program Cost Share Guidelines for NPS Pollution Control Best Management Practices to revise cost share policies and incorporate new or modified BMPs, as needed	5 Updates	NA	On Schedule: The Guidelines were updated in June 2016
Conservation Systems Manual developed in cooperation with the agricultural workgroup for the ND Nutrient Reduction Strategy, NRCS, Extension Service and the SWQMP.	1	NA	Postponed: The development of the manual has been rescheduled to be completed in 2019 after the Nutrient Reduction Strategy is finalized.
NRCS input on the feasibility of incorporating 319 cost share funds committed to priority watersheds into the locally lead EQIP funding pool. The 319 funds would be planned and contracted by the NRCS District Conservationist using the NRCS planning system. If feasible, policies and procedures would be developed, in cooperation with NRCS	NA	NA	Pending: Scheduled for 2017
Draft policies for a riparian management program to provide cost share for the establishment and maintenance of riparian management systems in watershed project areas. These agreements would be 5-10 years in length and limit uses to specific practices or management systems that prevent overuse and degradation of the riparian corridor, but do not prohibit all uses during the agreement period	Draft Riparian Management Cost Share Policy	NA	Behind Schedule/Rescheduled: The current BMP Cost Share Guidelines already include policies on supporting easements or long term agreements that reestablish permanent vegetation in riparian areas. These policies will be revisited in 2017/2018 to determine if they need to be expanded to include additional criteria that would allow different levels of use/management under a reduced payment schedule.
NRCS feedback on the feasibility of establishing and supporting NRCS liaison positions to serve as the coordinator within watersheds supported with Section 319 funding	Agreement for 319/NRCS Liaison Positions	NA	Pending: Scheduled for 2017

<u>Coordination Objective:</u> Maintain and expand partnerships at the state and local levels to diversify input for project development and implementation as well as to increase opportunities for securing and coordinating resources to more efficiently address identified NPS pollution impacts.

Task 1: Assist resource management entities (e.g., SCDs, WRB, Universities) with the establishment of sponsorships and associated advisory committees that will be responsible for the prioritization, development and implementation of NPS pollution management projects

Outputs	Total Planned Quantity	2015-16 Planned Quantity	Status/Actual Outputs to Date
Lead sponsors and advisory committees for new NPS projects established each year	NA	NA	Ongoing: Local project sponsors have been established for all projects funded with 319 funds. A majority of the sponsors are soil conservation districts. When applicable, the lead sponsors have also established advisory committees.
Membership on advisory committees for active NPS projects	NA	NA	Ongoing: NPS Program staff has participated in the local project advisory committees, as needed.

Task 2: Coordinate with SWQMP staff and local partners to establish basin stakeholder advisory groups and technical advisory groups as the Basin Framework is implemented within each river basin.

Outputs	Total Planned Quantity	2015-16 Planned Quantity	Status/Actual Outputs to Date
Basin stakeholder advisory groups (BSAG) established for each of the five major river basins.	3	1	Behind Schedule: SWQMP staff has initiated discussions in the Red River Basin to determine steps for establishing a BSAG for the Red River Basin. Two public meetings are schedule for 2/2017 to gain stakeholder input. Establishment of a BSAG has been rescheduled to be completed by 2018.
Technical advisory groups (TAGs) formed by the basin stakeholder advisory groups for each major river basin. Three TAGs established 2015-2020.	3	1	Behind Schedule: Formation of the TAG for the Red River Basin will be completed after the BSAG is established. See previous comment.

Task 3: Maintain partnerships and communication with the NGOs, as well as local, state, and federal agencies to increase awareness of coordination opportunities for addressing water quality concerns related to NPS pollution.

Outputs	Total Planned Quantity	2015-16 Planned Quantity	Status/Actual Outputs to Date
Two Task Force meetings annually to obtain input and recommendations on local NPS projects seeking Section 319 funding	10	3	On Schedule: Two Task Force meetings were held each year in 2015 & 2016.
Participation in meetings (e.g., NRCS Technical Committee, Extension Service Advisory Committee, NDASCD annual meetings, etc.) focused on the delivery of state and federal natural resource management programs that directly or indirectly address NPS pollution impairments to the state's water res	NA	X	Ongoing: SWQMP staff have participated in meetings with NRCS, NDASCD, Extension Service, Ag Coalition, Joint Water Resource Boards, USGS, ND Game & Fish Department, Industrial Commission, etc. to provide input on NPS pollution management in the state.
Meet with NRCS, annually, to review the status of the MOU and discuss options for coordinating financial and technical assistance within the NPS project areas.	5 Meetings	1	On Schedule: NPS Program staff had informal meetings with NRCS throughout 2015 & 2016 to discuss NWQI watersheds, data sharing, training, etc.

Outputs	Total Planned Quantity	2015-16 Planned Quantity	Status/Actual Outputs to Date
Periodic meetings with NPS Program partners (e.g., Extension Service, ND Association of Soil Conservation Districts, Commodity Groups, EPA, wildlife organizations) to keep them updated on the NPS Program. Multiple meetings annually throughout the Management Plan	NA	X	Ongoing: Numerous meetings with NPS Program partners have been held throughout the year.
Participate in annual SCD Area meetings (5 meetings/year) to keep the SCD's in the state informed on the progress and future plans of the NPS and TMDL Programs, Basin Framework, Nutrient Reduction Strategy, other SWQMP Programs	25	7	On Schedule: NPS Program staff participated in all five SCD Area meetings in 2015 & 2016.

<u>Information and Education Objective</u>: Strengthen support for and participation in NPS pollution management projects by increasing public awareness and understanding of NPS pollution impacts and the solutions for restoring and protecting those water resources impaired or threatened by NPS pollution.

Task 1: Maintain delivery of a balanced statewide I&E Program that addresses priority NPS pollution issues and targets all age groups.

Outputs	Total Planned Quantity	2015-16 Planned Quantity	Status/Actual Outputs to Date
Network of 8-10 statewide or regional educational programs targeting K-12 students, teachers, resource management professional, agricultural producers, landowners, and the general public. Approximately one third of the projects will be focused on youth education and the balance will be designed to train-the-trainer, promote new agricultural management systems; distribute educational materials, provide technical support; demonstrate new technologies or practices; and/or disseminate information on specific NPS pollution issues and solutions	I&E Network	X	Ongoing: Twelve educational projects were supported in 2015-2016. Refer to Section VI for details on specific projects.
Participate on project advisory committees to ensure I&E programs remain current and focused on NPS pollution education	NA	X	Ongoing: NPS Program staff has participated on advisory committees for Project WET, Envirothon and Prairies Waters Education Center. Technical support has also been provided to the ECO ED Program and several watershed projects to conduct scheduled I/E events.
Educational components maintained in watershed-based projects to supplement the statewide educational network. Approximately, 35 educational events within the watershed projects each year	174 projects	52	On Schedule: All the active watershed projects have continued to conduct 1 or 2 major educational events (e.g., workshops, tours, demonstrations) annually. This is in addition to scheduled newsletters, radio spots, news articles, etc. Annually, over 20 major events have been conducted by the local watershed projects. The annual and final reports in the GRTS include listings of I&E events conducted by the watershed projects.
In-house library of various NPS pollution/water quality I&E materials developed by state, local, federal, and private organizations and make the information available to program partners and resource management	NA	X	Ongoing: An in-house library is being maintained. The NPS Program web site also has NPS related links and materials available to all visitors.
NPS Program web site: http://www.ndhealth.gov/WQ/sw/Z1_NPS/default.htm	NA	X	Ongoing: The NPS Program web site has been maintained.

Task 2: Strengthen the abilities of resource managers and agricultural producers to recognize and address beneficial use impairments associated with NPS pollution.

Outputs	Total Planned Quantity	2015-16 Planned Quantity	Status/Actual Outputs to Date
Coordinate with NDSU Extension Service, NDASCD, SSCC, SCD Employees Association; NRCS and others to organize and conduct a series of 4 workshops that cover: 1) NPS pollution sources, causes and solutions; 2) watershed project development; 3) education and outreach methods; and 4) project implementation/management. The primary target audience will be local resource managers (e.g. SCD technicians & supervisors, County Agents, WRB supervisors) and NRCS field office staff	4 workshops	NA	Revised: As a replacement to the resource-based workshops, the NPS Program has coordinated with NDSU Extension to develop a series of Leadership Workshops that target SCD supervisors and staff. When approved for FY17 funding, these workshops will be conducted in 2017-2018. If these workshops are successful, the NPS Program has also tentatively planned to conduct the resource-based workshops originally scheduled in this task. These resource-based workshops would likely be held in 2019 or 2020.
Provide county newspapers and other local media with 2 articles per year that discuss local NPS pollution issues; management options for NPS pollution; and any other subjects related to NPS pollution and water quality	10 articles	3	On Schedule: NPS pollution/water quality related articles were published in the Water magazine and also sent out to all the county newspapers. 8-10 articles are distributed annually
Two training workshops addressing BMP planning and targeting to address water quality impairments. The target audience will include watershed project coordinators, SCD staff involved in watershed projects and NRCS field office staff within active or pending watershed project areas	2 Planning workshops	1	Postponed: No workshops were conducted in 2016. Instead, the NPS Program is coordinating with NRCS to reevaluate the need for this workshop and determine if current agency training events could be expanded to meet the need. Options for the training will be finalized in 2017. During the interim, the annual NPS Program Watershed Coordinators Conferences will include more presentations on resource planning and management.
Annual watershed and NRCS DC conference	5	1	On Schedule: All the NRCS DC's involved in a NPS Program watershed projects are invited to the annual NPS Program Watershed Coordinators Conference.

Task 3: Document the degree of public awareness and understanding of NPS pollution issues in the state to identify steps needed to strengthen statewide educational offerings.

Outputs	Total Planned Quantity	2015-16 Planned Quantity	Status/Actual Outputs to Date
Statewide survey in 2016 to evaluate the general public's current understanding and awareness of NPS pollution issues and concerns in the state	1 survey	NA	Discontinued: Due to resource limitations the statewide survey will not be conducted. Instead, the NPS Program is conducting landowner surveys within the watershed assessments areas to gauge interest and understanding. Feedback through these surveys will be used to determine educational needs within the watersheds as well as statewide.
A five-year I&E strategy, based on the statewide survey results, that schedules actions that will eliminate "shortcomings" in the statewide educational network and increase public awareness and understanding of NPS pollution issues and solutions.	Five-year Statewide I&E Strategy	1	Revised: Implementation of the objectives and tasks in Educational Section of the Management Plan will serve as the I&E Strategy.
Coordinated effort with local resource managers, universities and other state agencies to develop new statewide or local educational initiatives that will improve the balance of the statewide educational offerings	2 new initiatives	NA	Pending: This task is scheduled to be initiated in 2017.
Follow-up survey in 2020 to evaluate the benefits of past educational efforts and reassess the awareness and understanding of the general public regarding NPS pollution management and impacts	1 survey	NA	Discontinued: Since the initial survey was not completed the follow-up survey will also not be completed. The NPS Program will reevaluate the feasibility of a statewide survey in 2020.

<u>Evaluation Objective</u>: Document the effectiveness and success of the NPS Program and its state and local partners in identifying and addressing the sources and causes of NPS pollution impairing or threatening beneficial uses of waters of the state.

Task 1: Evaluate and document local NPS project progress toward approved PIP goals

Outputs	Total Planned Quantity	2015-16 Planned Quantity	Status/Actual Outputs to Date
Approved annual and final project reports. Approximately 30 annual reports and 5 final project reports will be completed, annually	150 annual and 25 final reports	70	On Schedule: All the annual project and final project reports due in 2015 and 2016 have been completed and entered in the GRTS.
Final water quality reports for completed watershed projects that describe progress towards beneficial use and/or pollutant load reduction goals. 3-5 final water quality reports, annually, for inclusion in the final project reports	25	10	On Schedule: When applicable, the final reports submitted at the end of a project include a final water quality report. Table 5 in Section VII lists the projects that submitted final reports. All the annual and final reports submitted in 2015-2016 have been entered in the GRTS.
Estimated annual pollutant load reductions (based on modeled results) associated with applied BMP within the watershed and support project areas. Estimated annual load reductions for nitrogen and phosphorus are 100,000 pounds and 50,000 pounds, respectively	500,000 pounds of nitrogen & 250,000 pounds of phosphorus	Reductions of 100,000 lbs of N & 50,000 lbs. of P annually	On Schedule: The cumulative nitrogen and phosphorus load reductions reported in the GRTS for 2016 are 77,167 and 29,917 pounds, respectively.
Annual updates to the GRTS, including estimated pollutant load reductions and applied BMPs per applicable project	5 updates	Annual GRTS Updates	Ongoing: GRTS has been updated for 2016.

Task 2: Identify additional modeling options and/or improvements to generate better pollutant load reduction estimates.

Outputs	Total Planned Quantity	2015-16 Planned Quantity	Status/Actual Outputs to Date
Additional BMP efficiency coefficients that will expand the STEPL modeling capabilities to more fully account for the pollutant load reductions for a broader range of applied BMPs	5-10 new BMP efficiency coefficients	NA	Complete: The BMP efficiency calculator in the STEPL model is being used to generate efficiency coefficients for several cropland BMP.
Pilot modeling process (i.e., AnnAGNPS, Decision Support Tool) to evaluate the feasibility to efficiently and accurately estimate pre- and-post BMP load reductions on small acreages to accommodate a performance based cost share system	1 pilot project	NA	Pending: Modeling options for evaluating pre/post BMP implernentation load reductions will be determined in 2017-2018.
LiDAR-based Decision Support Tools for estimating load reductions in priority areas in the James and Wild Rice River Basins	2 Decision Support Tools	1 Basin Decision Support Tools	On Schedule: The Wild Rice Basin Decision Support Tool is complete and the Decision Support Tool (i.e., PTMApp) for the James River Basin will be completed in 2017.

Task 3: Track the sustainability of the benefits achieved through BMPs applied within the watershed projects and document delayed responses to BMPs applied near the end of the watershed projects.			
Outputs	**Total Planned Quantity**	**2015-16 Planned Quantity**	**Status/Actual Outputs to Date**
Data collected through post- project monitoring of priority watershed projects completed through the Basin Framework. Given the current status of the development of the Basin Monitoring Framework, the first post-project monitoring efforts will be initiated in the Red River Basin in 2018.	Post-project monitoring in 5 completed watersheds	NA	Pending: The first post-project monitoring is scheduled for 2018
Task 4: Review and update the Management Plan in 2017 and 2020, as needed, to ensure the program will effectively address coordination with other pending SWQMP initiatives or strategies and account for any changes in NPS pollution impacts to the water quality and beneficial uses of the state's water resources.			
Outputs	**Total Planned Quantity**	**2015-16 Planned Quantity**	**Status/Actual Outputs to Date**
Interim review and update to the Management Plan in 2017 to incorporate any revisions needed to better describe coordination with the pending Basin Framework, TMDL Vision, and Nutrient Reduction Strategy	1 interim update	NA	Pending: The Management Plan will be reviewed and undated, as needed, in 2017
Two NPS Task Force meetings in 2020 to obtain input on updates to the Management Plan for the next 5-year period	2 Task Force meetings	NA	Pending: The Management Plan will be updated and submitted to the Task Force for review and approval in 2020.
Questionnaire distributed to sponsors and partners in 2019 to solicit feedback regarding delivery of NPS Program financial assistance and technical support	1 Questionnaire	NA	Pending: The sponsor/partner survey will be completed in 2019.
Updated Management Plan for the period of 2020 – 2025 based on recommendations and feedback	Updated Management Plan	NA	Pending: The Management Plan update for the next 5-year period will be completed in 2020.

Appendix B
Section 319 Expenditures by Projects Supported under the 2011-2016 Grants during the Management Plan period

January 1, 2015 – December 31, 2016

Development Phase - NPS Assessments	
Project Name	**319 Expenditures**
Fargo Water Quality Stewardship: Addressing WQ at the Community Level	$21,827.26
James River Basin Decision Support Tool Development Project	$226,842.63
Little Missouri Tributary Assessment (Bowman SCD Support)	$1,162.74
Little Missouri Tributary Riparian & Stream Stability Assessment	$9,188.28
Middle Sheyenne River Watershed Plan Development	$21,184.10
Subtotal	**$280,205.01**
Education - Demonstrations	
Project Name	**319 Expenditures**
NDSU Discovery Farms Program	$135,870.35
NDSU Discovery Farms Program – Phase II	$52,464.15
NDSU Vegetative Buffer Demonstration & Evaluation Project - Phase II	$29.57
Subtotal	**$188,364.07**
Education - Public Outreach Projects	
Project Name	**319 Expenditures**
Envirothon Program Phase IV	$60,574.77
Foster Co. TREES - Phase II	$150,437.28
Foster Co. TREES - Phase III	$46,431.83
Menoken Farm Soil Foodweb Project	$1,266.37
Menoken Farm Soil Foodweb Project – Phase II	$100,538.04
NDSU Eastern ND Soil Salinity Program	$26,980.57
NDSU Eastern ND Soil Salinity Demonstration Network	$3,170.65
NDSU Nutrient Management Educational Support Program – Phase II	$99,338.25
NDSU Nutrient Management Educational Support Program	$95,405.91
Partners for Improving Water Quality I&E Program	$92,672.90
Prairie Waters Education and Research Center	$29,935.21
Prairie Waters Education and Research Center – Phase II	$127,607.88
Project WET - Phase II	$108,979.52
Project WET - Phase III	$131,073.74
Ranchers Mentoring Project	$108,892.34
Statewide ECO ED Program - Phase III	$158,294.82
Water Wisdom Project	$27,238.53
Subtotal	**$1,368,838.61**
Local Support Projects	
Project Name	**319 Expenditures**
Livestock Pollution Prevention Program	$68,738.76
Livestock Pollution Prevention Program - Phase III	$239,368.00
NDSU Riparian Ecological Site Description Development Project	$23,326.12
NPS BMP Team - Phase II	$140,233.66
Stockmen’s Association Environmental Services Program - Phase III	$798,920.17
Stockmen’s Association Environmental Services Program - Phase IV	$65,134.50
Subtotal	**$1,335,721.21**

Watershed Projects	
Project Name	**319 Expenditures**
Antelope Creek Watershed/Wild Rice Riparian Corridor Project - Phase II	$89,084.46
Antelope Creek Watershed/Wild Rice Riparian Corridor Project - Phase III	$335,141.26
Baldhill Creek Watershed - Griggs Co.	$53,172.81
Bear Creek Watershed - Phase II	$48,054.05
Beaver Creek/Seven Mile Coulee Watershed - Phase II	$295,669.50
Cannonball River-Dogtooth Creek Watershed	$109,535.91
Coyote Creek Watershed & Little Missouri Tributaries Assessment	$55,659.78
English Coulee Watershed	$25,755.62
James River Headwaters Watershed - Phase II	$59,574.07
Kelly Creek Watershed	$79,435.55
Maple River Watershed Phase II - Buffalo Creek	$124,586.33
Middle Sheyenne River Watershed	$22,965.18
Morton Co. Northeastern Watersheds	$196,510.47
Powers Lake Watershed – Phase III	$23,947.93
Powers Lake Watershed Restoration Action Strategy - Phase II	$61,807.17
Red River Riparian Project - Phase V	$126,724.23
Sheyenne Watershed Sedimentation Reduction Project	$224,740.23
Spring Creek Watershed	$68,924.78
Spring Creek Watershed - Phase II	$89,601.99
Stutsman Co. Livestock Manure Management Program	$376,679.05
Timber Coulee Watershed	$74,940.22
Turtle Creek Watershed	$74,313.44
Upper Turtle River Watershed - North & South Branches	$69,864.84
Walsh Co. Homme Dam Watershed	$70,340.39
Wild Rice River Restoration and Riparian Project - Phase II	$208,104.73
Wild Rice River Restoration and Riparian Project - Phase III	$65,182.99
Subtotal	**$3,030,316.98**
TOTAL PROJECT EXPENDITURES	**$6,203,445.88**

Appendix C

Final Section 319 Budgets for Projects Supported under the 2011 Grant

Project Name	Project Type	Final 319 Budget
NDSU Assessment of Multi-Element Composition of Soil Profiles in Prairie Wetlands	Development Phase	$24,604
Prairie Waters Education and Research Center	Education - Public Outreach	$70,000
Livestock Pollution Prevention Program	Local Project Support	$583,643
NDSU Eastern ND Soil Salinity Program	Education - Public Outreach	$29,931
Antelope Creek Watershed/Wild Rice Riparian Corridor Project - Phase II	Watershed Project	$537,012
Bear Creek Watershed – Phase II	Watershed Project	$215,556
Coyote Creek Watershed & Little Missouri Tributaries Assessment	Watershed Project	$196,434
Fargo Water Quality Stewardship: Addressing WQ at the Community Level	Development Phase	$37,749
James River Headwaters Watershed – Phase II	Watershed Project	$322,107
NDSU Nutrient Management Educational Support Program	Education - Public Outreach	$352,000
Powers Lake Watershed Restoration Action Strategy - Phase II	Watershed Project	$129,017
Spring Creek Watershed	Watershed Project	$400,033
NPS BMP Team – Phase II	Local Project Support	$40,000
Foster Co. TREES _ Phase II	Education - Public Outreach	$139,350
James River Basin Decision Support Tool Development Project	Development Phase	$197,396
Stockmen's Association Environmental Services Program - Phase III	Local Project Support	$138,500
NPS Program Staffing & Support	Staffing	$637,668
Total		**$4,051,000**

Appendix D

Summary of Partner Organizations' Assistance to the NPS Program

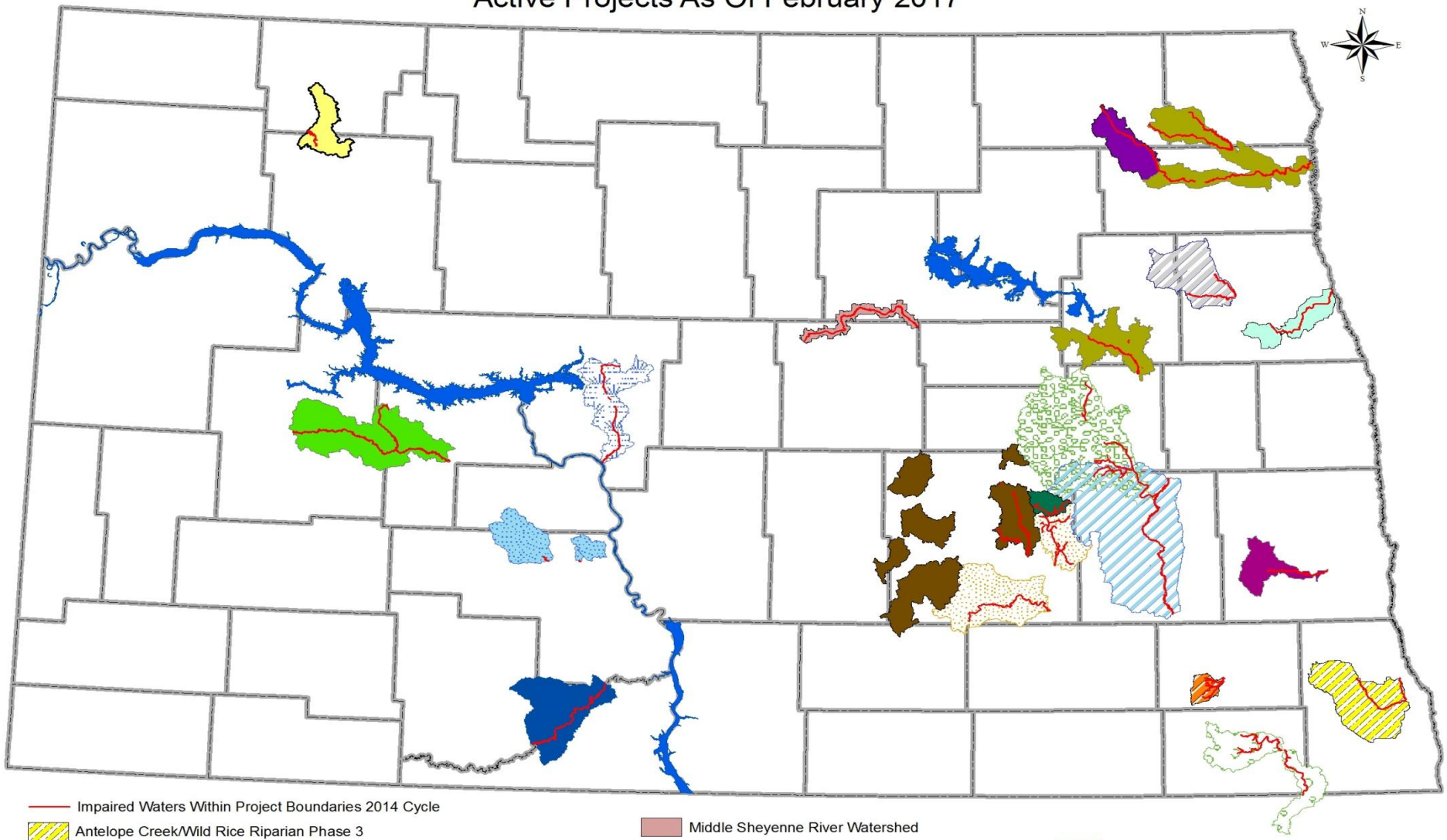
	Organization Type	Assistance Type **		NPS Program Interaction with Partner Organizations				
Agency or Organization	**Federal, NGO* or State/Local**	**TA**	**FA**	**Task Force Member**	**Attend Partner Meetings**	**NPS Project Sponsor**	**BMP Support**	**NPS Project Planning Assistance**
Natural Resource Conservation Service	Federal	X	X	X	X		X	X
US Geological Survey	Federal	X	X	X	X			X
Us Farm Services Agency	Federal	X	X	X			X	
US Fish & Wildlife Service	Federal	X		X				X
US Forest Service	Federal	X		X				X
US Environmental Protection Agency	Federal	X	X	X	X		X	X
US Army Corps of Engineers	Federal	X						
ND Association of Soil Conservation Districts	NGO	X		X	X			
ND Stockmen's Association	NGO	X	X	X	X	X	X	X
Red River Basin Commission	NGO	X		X	X			X
Resource Conservation & Development Councils	NGO	X	X		X	X	X	X
Ducks Unlimited	NGO	X	X		X		X	
ND Grazing Lands Coalition	NGO	X	X		X	X	X	X
ND Certified Crop Advisors Board	NGO	X			X			
Keep ND Clean Inc.	NGO	X			X			X
International Water Institute	NGO	X			X	X		X
Local Soil Conservation Districts	State/Local	X	X		X	X	X	X
Water Resource Boards (county-level)	State/Local	X	X		X	X	X	X
ND Department of Agriculture	State/Local	X	X	X		X	X	X
ND Game & Fish Department	State/Local	X	X	X			X	X
Upper Sheyenne Joint Water Resource Boards	State/Local	X			X			X
NDSU Extension Service (State-level)	State/Local	X	X	X	X	X		X
ND State Water Commission	State/Local	X	X	X	X	X	X	X
ND Forest Service	State/Local	X		X	X		X	X
ND Industrial Commission	State/Local		X				X	
Universities (NDSU, UND, VCSU)	State/Local	X	X			X		X
ND Department of Public Instruction	State/Local	X			X			X
Cities	State/Local	X	X		X			X
ND State Historic Preservation Office	State/Local	X						X

* NGO- Nongovernmental Organization

** TA – Technical Assistance; FA – Financial Assistance

Appendix E
Maps of the Active Watershed Projects during the Management Plan Period

Active Projects As Of February 2017



- Impaired Waters Within Project Boundaries 2014 Cycle
- Antelope Creek/Wild Rice Riparian Phase 3
- Baldhill Creek Waterhsed
- Beaver Creek/7 Mile Coulee
- Buffalo Creek Maple River
- Cannonball River Dogtooth Creek
- English Coulee Watershed
- Homme Dam Watershed
- Middle Sheyenne River Watershed
- Morton County NE Watersheds
- Powers Lake Watershed Phase 3
- Red River Riparian Priority Areas Phase 5
- Sheyenne River Sediment Reduction Project
- Shortfoot Creek Crooked Creek Watersheds
- Spiritwood Lake Watershed
- Spring Creek Watershed
- Stutsman County Manure Management Program
- Timber Coulee Watershed
- Turtle Creek Watershed
- Turtle River - North And South Branches
- County Boundaries

Appendix F
Amounts and Costs of Best Management Practices Implemented during the Management Plan Period under the 2011-2016 Grants
January 1, 2015 – December 31, 2016

Category/Practice	Amount	Units	Cost Share	Producer Match	Total Cost
Cropland Management					
Cover Crop	9,981.21	Acres	$79,399.60	$52,933.05	$132,332.65
Nutrient Management	3,209.58	Acres	$39,343.00	$26,228.67	$65,571.66
Pasture/Hayland Planting	80.00	Acres	$2,394.72	$1,596.48	$3,991.20
		Total	**$121,137.32**	**$80,758.20**	**$201,895.51**
Grazing Management					
Alternative Power Source (Livestock Watering Only)	5.00	Number	$11,740.44	$7,826.96	$19,567.40
Electric Fence Energizer	3.00	Number	$490.20	$326.80	$817.00
Fencing	43,544.00	Linear Feet	$36,738.63	$24,492.42	$61,231.05
Fencing (Barbed)	325,257.70	Linear Feet	$114,548.84	$76,365.89	$190,914.73
Fencing (Multiple Wire Electric)	103,881.90	Linear Feet	$40,802.14	$27,201.42	$68,003.57
Fencing (Single Wire Electric)	17,940.00	Linear Feet	$5,489.64	$3,659.76	$9,149.40
Fencing (Woven Wire)	1,779.00	Linear Feet	$1,761.21	$1,174.14	$2,935.35
Miscellaneous (Grazing Management)	5.00	Misc	$158.39	$105.60	$263.99
Pasture/Hayland Planting	2,428.10	Acres	$88,743.33	$59,162.24	$147,905.56
Pipelines	44,981.50	Linear Feet	$60,357.40	$40,238.26	$100,595.65
Pond	4.00	Number	$8,370.00	$5,580.00	$13,950.00
Prescribed Grazing	2,263.50	Acres	$0.00	$0.00	$0.00
Range Planting	137.00	Acres	$0.00	$0.00	$0.00
Rural Water Hookup	6.00	Number	$2,437.85	$1,625.24	$4,063.09
Solar Pumps	2.00	Number	$7,770.00	$5,180.00	$12,950.00

Category/Practice	Amount	Units	Cost Share	Producer Match	Total Cost
Grazing Management (continued)					
Spring Development	3.00	Number	$510.00	$340.00	$850.00
Trough and Tank	50.00	Number	$33,247.26	$22,164.81	$55,412.07
Well (Livestock Only)	12.00	Number	$50,886.41	$33,924.26	$84,810.67
		Total	**$464,051.74**	**$309,367.80**	**$773,419.53**
Erosion Control					
Critical Area Planting	34.60	Acres	$7,380.40	$4,920.27	$12,300.67
Miscellaneous (Erosion Control)	2.00	Misc	$0.00	$0.00	$0.00
		Total	**$7,380.40**	**$4,920.27**	**$12,300.67**
Livestock Manure Management System (Full System)					
Phase I Waste Management System	10.00	System(s)	$562,678.78	$375,119.19	$937,797.97
Phase II Waste Management System	8.00	System(s)	$382,788.02	$255,191.99	$637,980.01
Phase III Waste Management System	1.00	System(s)	$35,893.98	$23,929.32	$59,823.30
Waste Management System (Coordinated With EQIP)	1.00	System(s)	$24,998.40	$16,665.60	$41,664.00
Waste Management System (Full System Completed)	1.00	System(s)	$104,173.11	$69,448.74	$173,621.85
		Total	**$1,110,532.29**	**$740,354.84**	**$1,850,887.13**
Livestock Manure Management System (Partial System)					
Miscellaneous (Partial Manure Management System)	1.00	Misc	$800.00	$533.00	$1,333.00
Pipelines	100.00	Linear Feet	$12,013.03	$8,008.69	$20,021.72
Portable Windbreaks	12,687.00	Linear Feet	$114,473.33	$76,315.54	$190,788.87
Waste Utilization	18,803.00	Tons	$2,076.64	$1,384.43	$3,461.07

Category/Practice	Amount	Units	Cost Share	Producer Match	Total Cost
Livestock Manure Management System (Partial System) ***(Continued)***					
Water Supply (Ag Waste)	1.00	Number	$2,167.32	$1,444.88	$3,612.20
Watering Facility (Ag Waste:Tank,Pipeline,Well)	1.00	Number	$6,861.49	$4,574.32	$11,435.81
		Total	**$138,391.81**	**$92,260.86**	**$230,652.67**
Miscellaneous Practices					
Cultural Resource Review	2.00	Number	$1,060.00	$706.67	$1,766.67
Miscellaneous (Grazing Management)	2.00	Misc	$415.74	$277.16	$692.90
Miscellaneous (Miscellaneous Practices)	1.00	Misc	$0.00	$0.00	$0.00
Portable Windbreaks	240.00	Linear Feet	$5,004.00	$3,336.00	$8,340.00
Septic System Renovation	47.00	Number	$311,172.45	$207,448.33	$518,620.78
Solar Pumps	3.00	Number	$5,890.69	$3,927.12	$9,817.81
Well Decommissioning	29.00	Number	$15,558.00	$10,372.00	$25,930.00
		Total	**$339,100.88**	**$226,067.28**	**$565,168.16**
Riparian Area Management					
Miscellaneous (Riparian Area Management)	1.00	Misc	$10,782.40	$7,188.27	$17,970.67
Riparian Easement (On Cropland)	25.85	Acres	$24,845.85	$16,563.90	$41,409.75
Riparian Herbaceous Cover	246.20	Acres	$5,338.52	$4,704.84	$10,043.36
Selective Debris Removal (Site-Specific Approval Required)	5.00	Site	$0.00	$0.00	$0.00
Streambank and Shoreline Stabilization	380.00	Linear Feet	$0.00	$0.00	$0.00
Tree Planting - Machine (Scalp Plant/Site Prep)	10.20	Per 100 Ft	$465.12	$310.08	$775.20
Weed Control For Established Trees (Chemical)	5.00	Acres	$24.00	$16.00	$40.00
		Total	**$41,455.89**	**$28,783.09**	**$70,238.98**

Category/Practice	Amount	Units	Cost Share	Producer Match	Total Cost
Upland Tree Planting					
Miscellaneous (Upland Tree Planting)	6,520.00	Misc	$0.00	$0.00	$0.00
Tree Tube Shelters (3 Foot)	200.00	Number	$0.00	$0.00	$0.00
Tree/Shrub Establishment	437.56	Per 100 Ft	$1,019.52	$679.68	$1,699.20
Weed Control for Established Trees (Weed Barrier)	345.33	Per 100 Ft	$4,604.40	$3,069.60	$7,674.00
Windbreak/Shelterbelt	4,739.36	Per 100 Ft	$1,995.24	$1,330.16	$3,325.40
		Total	**$7,619.16**	**$5,079.44**	**$12,698.60**
Vegetative Buffers					
Grassed Waterway	1.00	Acres	$0.00	$0.00	$0.00
		Total	**$0.00**	**$0.00**	**$0.00**
		Grand Total	**$2,229,669.49**	**$1,487,591.78**	**$3,717,261.25**